EXHIBIT 7

Exhibit 4

Market Report:

Analysis of Process Automation Investments and Total Cost of Ownership (TCO) Appian, IBM, and Pega

bpm.com Enabling the Digital Enterprise

Preface from Appian

Selecting the right digital transformation platform remains a significant and costly challenge for many enterprises. To help you assess your options, Appian commissioned BPM.com, a leading market research group focused on workflow automation and business process management, to conduct a survey to explore respondents' experiences with different low-code platforms.

BPM.com focused on large customers, each having more than 100 employees, with verified projects. This resulted in a set of responses related to 104 distinct projects, including 18 Appian projects, 11 IBM projects, and 10 Pega projects. BPM.com reported its findings in a white paper, which described the respondents by industry segment, company size and project scope. And it compared the respondents' experiences across competing platforms on metrics such as total cost of ownership and average number of weeks for implementation.

While all projects are different, we encourage you to read the report and assess what relevance these businesses' experiences may have for your business.

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Overview of Research Methods and Analysis

Over the course of Q4 2018, BPM.com conducted market research **on end-user organization investment strategies and experiences with Business Process Management (BPM) software platforms**, also referred to as workflow automation, intelligent automation, and digital transformation platforms. This is the type of software offered by vendors such as Appian, IBM, and Pegasystems. Other references for the software in question include vendors found in guides such as Gartner's report on "*Intelligent Business Process Management Suites (iBPMS)*."

Purpose

The purpose of this research is to understand how automation software is being used to improve and automate mission-critical processes, and how these results correlate to economic advantages and overall investment size. Through the course of our analysis, we sought to identify the differences in both success rates and ownership costs. Specifically, we examined the costs associated with the different software platforms in use today, as well as the factors that contribute to overall TCO, including the respondents' respective project scope and resources required to deliver them.

Methodology

The research began with an online survey consisting of approximately 50 questions related to the participant's current practice with the software in question. From the survey we received approximately 500 responses. We then evaluated and validated each response. We eliminated any non-compliant entries, such as those from organizations deemed too small or from firms engaged in the sale, development, or specific services involved with this type of software. Then our team conducted follow up interviews with selected respondents to further validate and expand upon their answers. All responses included in this research represent **verified end user organizations** that are currently using process automation software and have documented project results. Through the validation process, our survey yielded a net total of 104 verified projects.

Research Findings

Research findings are provided in four areas:

1. **Total Cost of Ownership -** Differences in investment required between leading platforms, including combined sums of license, implementation, personnel, and maintenance costs.
2. **Project Team Breakdown and Total FTEs -** Team resources across various development roles required to deliver the projects cited by respondents.
3. **Time to Market / Speed of Application Delivery** - The reported timeframes involved for key development activities required to deliver the projects cited.
4. **Enterprise Platform vs. Departmental Silos** - The scope of projects cited by respondents, and the contrast between leading vendors relative to departmental and enterprise wide initiatives.

About BPM.com

For over a decade, BPM.com has been the leading destination for research, white papers and community forums on BPM and process automation. Our registered user group consists of 100,000 practitioners and process professionals, and our analyst team annually conducts market research on topics related to process automation.

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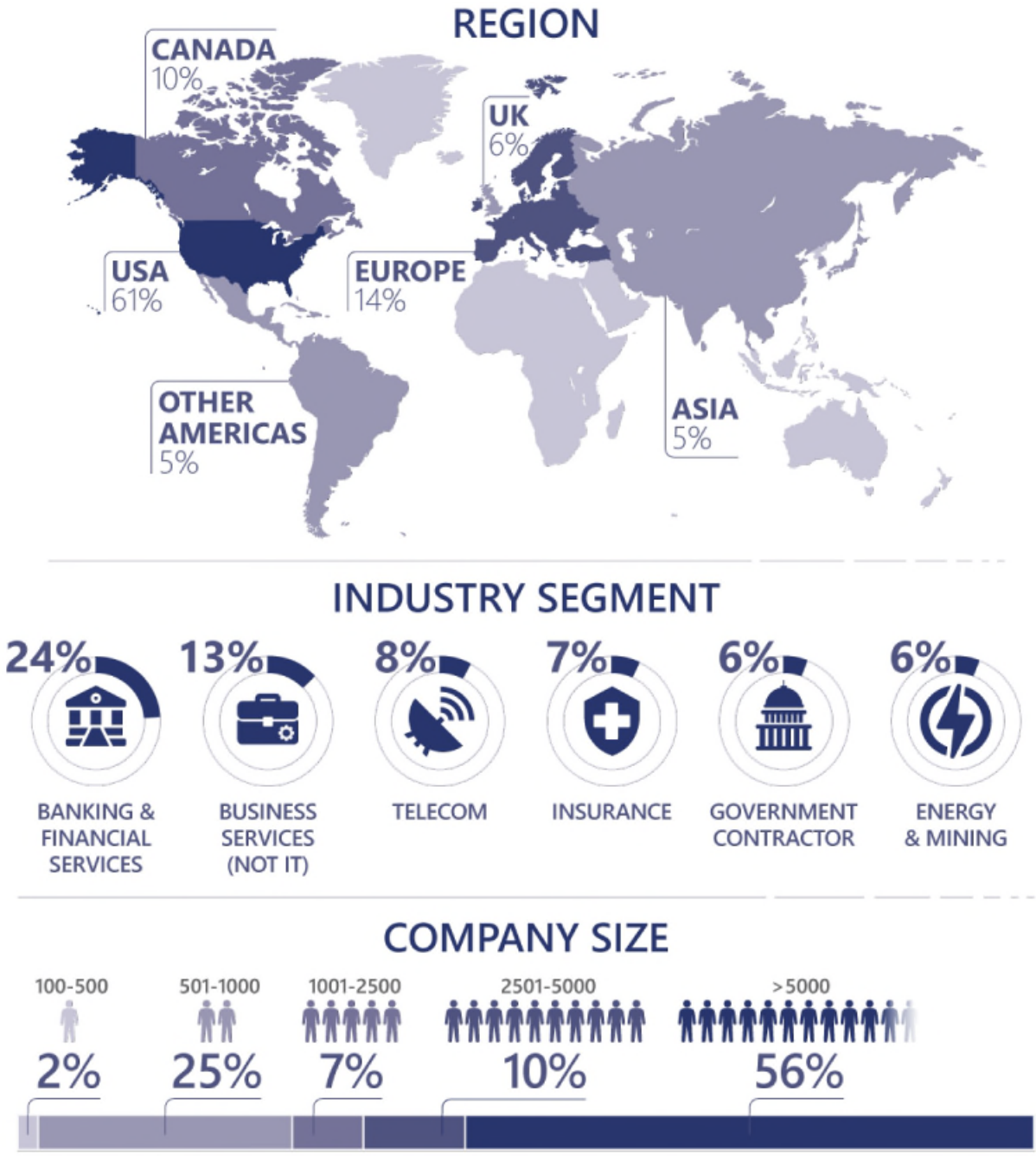
Respondent Demographics



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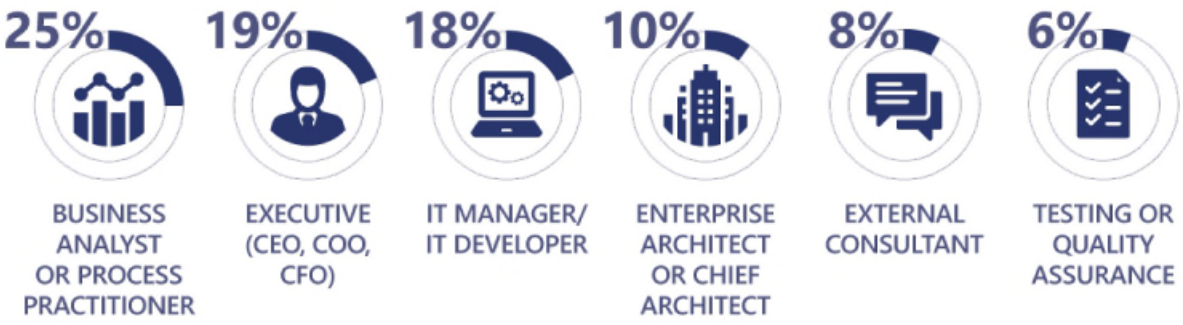
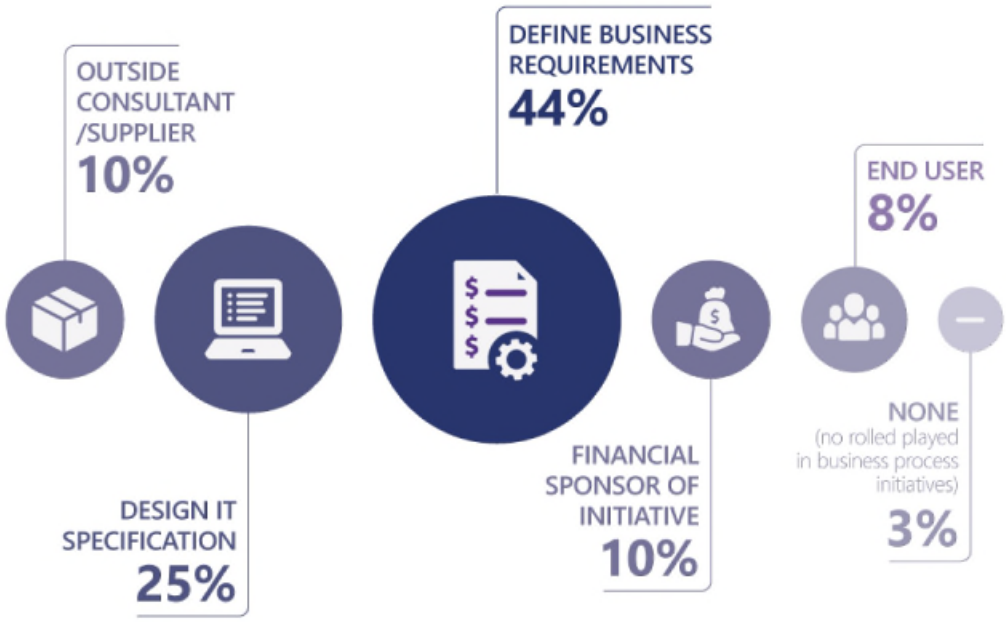
Respondent Profiles

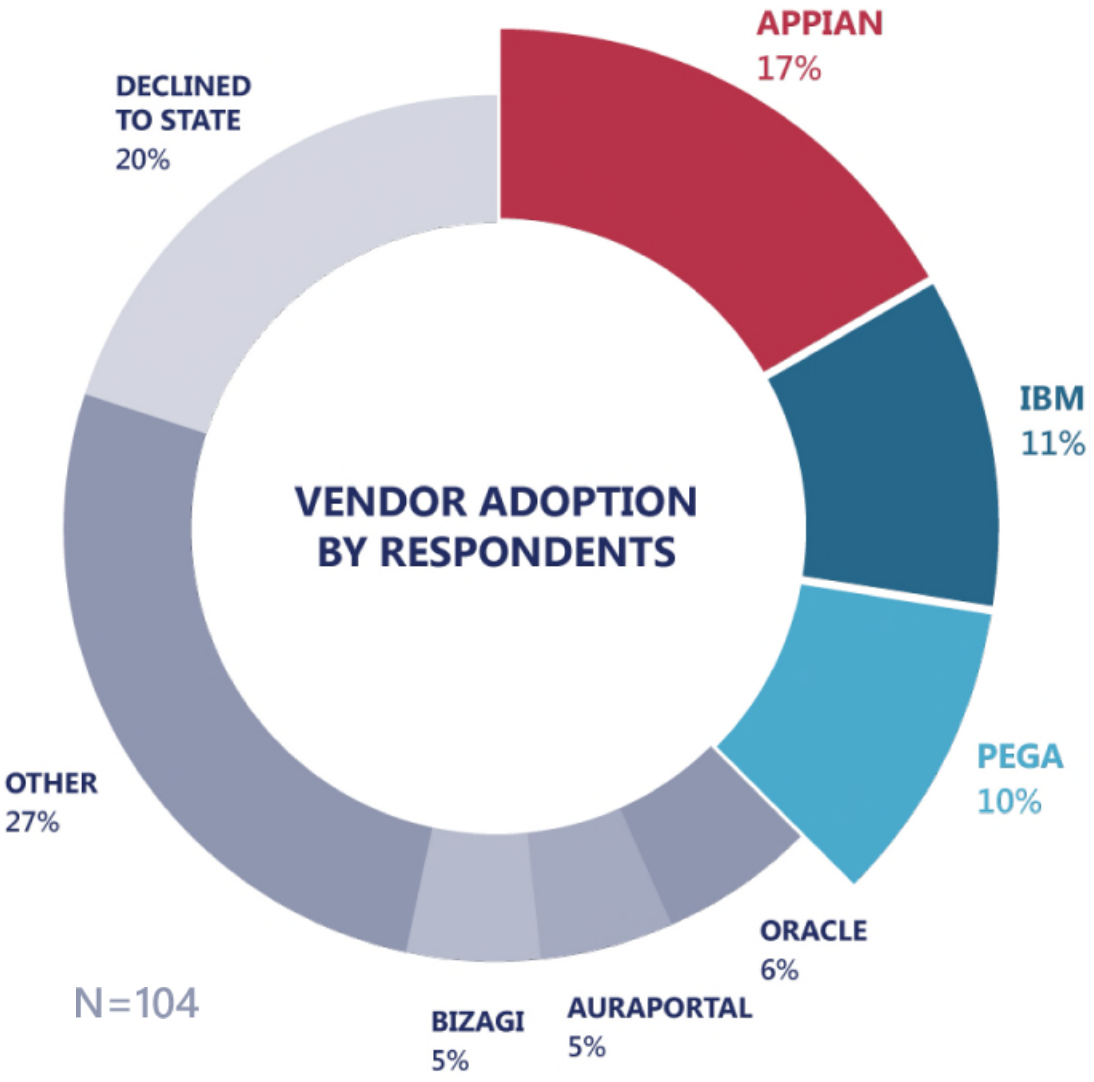
OVERALL JOB FUNCTION OR ROLE



ROLE SPECIFIC TO BUSINESS PROCESS AUTOMATION



Vendor Adoption



Primary Vendors

The graphic above highlights the distribution of vendors adopted by the survey participants. For this study, we analyzed the overall survey population as well as the Top 3 vendors adopted: Appian, IBM, and Pega. We place special focus on these three vendors in particular because of their larger market presence and high ranking in other market assessments conducted by technology analyst firms such as Gartner and Forrester. Further, all of the respondents who use Appian and Pega are from firms with greater than 5,000 employees (or greater than 1,000 for IBM). For these reasons, we performed breakout analysis on the projects from these three vendors.

Other responses from other vendors are relevant for overall market trends. They are included in the "Overall" figures. For example, while Oracle is a popular vendor, it is typically ranked lower in such reports. Similarly, AuraPortal and Bizagi are typically considered as emerging vendors. Meanwhile, vendors listed under "Other" had limited data points to report.

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Total Cost of Ownership

License, Personnel, and Other Implementation Costs

The first critical measure we evaluated is the **Total Cost of Ownership** (TCO) related to intelligent process automation initiatives and associated platforms. TCO relates to the costs from acquiring, operating, and maintaining a specific technology over its lifetime. This includes licensing, implementation, personnel, and other costs related to rollout.

We noticed a stark contrast for TCO between vendors (see Table 1). Organizations that run on Pega have spent the most—approximately 2.5 times more than the average, at $46 million. Those running on IBM spend nearly twice the overall average at $26 million. Appian customers have reported the lowest total upfront costs on average, at $4 million.

	Overall	Appian	IBM	Pega
License Cost & Vendor Professional Services	$3,050,526	$1,345,000	$7,160,000	$13,000,000
Other Personnel Costs in Implementation	$14,629,000	$2,925,000	$10,920,000	$32,714,286
Other Costs Relative to Rollout	$512,500	$120,333	$7,500,000	(none cited)
Total Up Front Investment	$18,192,026	$4,390,333	$25,580,000	$45,714,286
Real or Expected Annual O&M Costs	$1,620,225	$837,000	$14,352,000	$7,642,857

Table 1: Total Cost of Ownership Calculated by Average Investment in BPM Software and Related Services

One notable takeaway from this research is that higher TCO (including both up-front investment plus annual O&M costs) were not correlated to larger deployments or faster application delivery lifecycles. In fact, our research shows the opposite to be true. Below is a summary of project results distributed by all responses (shown in the "Overall" figures), as well as broken out by the three leading vendors.

	Overall	Appian	IBM	Pega
% Citing Enterprise Wide Projects	40%	59%	0%	34%
Total Outside Technical Staff	**8**	**2**	**8**	**13**
Total Number of Releases per Year	9	30	9	10
Total Development Time in Weeks	106	45	117	199

Table 2: Summary of Program/Project Metrics Across Vendor Customers and All Respondents

Project Team Breakdown and Total FTEs

One of the leading components of TCO, as well as an area of measurable differentiation between vendors, is the associated team size required to deliver comparable capabilities. In terms of the comparability of projects and firms, all the "Overall" figures reflect the organization profiles shown in "Respondent Demographics."

Regarding the composition of teams involved with the initiatives reported, survey respondents were asked: to "*estimate the number of FTEs (Full-Time Equivalents) who fall into each of the roles listed below.*" The survey captured total project team composition, inclusive of resources involved in activities outside of core development. For the purpose of this analysis, we focused on development resources, which offers the most relevant, direct comparison between platform vendors. Overall, firms running on Appian required far fewer total FTEs than competitors — less than a third of staff reported for the overall average, and just over one fifth the required FTEs cited by IBM and Pega customers. In addition, those using IBM or Pega cited requiring an average of 4-6 times more outside consultants than those using Appian.

	Overall	Appian	IBM	Pega
Enterprise Architects or Solution Architects	5	1	4	3
Platform/Product-specific Developers	6	3	14	11
QA or Testing Roles (exclusive of other roles)	7	2	13	11
Integration Architects	6	1	4	6
Outside Technical Staff	8	2	8	13
Totals	32	9	39	44

Table 3: Average Development Team Composition Across Vendor Customers and All Respondents

Since personnel cost was the largest factor in overall TCO (see Table 1) it is logical that customers having the highest TCO also employ greater numbers of resources and require larger project team sizes. For example, Pega customers cited both the highest TCO in the study, as well consistently requiring more FTEs than other vendors or the overall market.

Another difference we found related to not just the numbers of personnel involved, but the split between business and IT roles. In addition to requiring significantly fewer total FTEs, firms running on Appian cited a proportionally higher number of business analysts leveraged for delivering capabilities, including UI design and process modelling. In contrast, respondents citing IBM and Pega were more likely to be from the IT domain. Through interviews, we identified a recurring theme for both IBM and Pega customers of the business as a customer, rather than as partners or stakeholders in the way otherwise described by Appian customers.

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Time to Market / Speed of Application Delivery

Another important metric for measuring both overall value and ownership cost is time to market. Respondents cited an average of about 50 weeks for core development activity. It should be noted that this figure is the **total accumulated time per project, not project duration or total elapsed time**.

Time to Market Advantage of Low-Code Development Platforms

Low-Code Development Platforms represent an emerging software category that allows application development via configuration of GUI-based tools rather than extensive "hand coding" involved with procedural languages and command-line programming. This orientation is consistent with the traditional BPM environments, which typically leverage the more declarative approach of process model definition. Yet our research identified pronounced differences between truly low-code platforms, such as Appian's, compared with that of IBM or Pega, which required more traditional programming and introduced greater architectural complexity. These results illustrate a dividing line between low-code platforms and prior orientations recommend changing this to traditional BPM platforms for application development and process automation platforms. Respondents running on low-code platforms (notably Appian) consistently cited advantages which included easier UI design, the ability to build and maintain a library of reusable business objects, and overall faster application delivery.

Appian customers report on average 3 times faster application delivery compared to the overall market, and notably 3-5 times faster than what IBM or Pega customers have reported. These results support Appian's positioning as a low-code platform, which promotes faster time to market than platforms that demand extensive coding, customization, and integration efforts.

	Average No. of Weeks			
	Overall	Appian	IBM	Pega
Translation of Design Models to Run-time	13	5	8	30
Data Modelling and Data Structure Design	6	3	7	2
Software/Service Integration	15	4	15	19
UX/UI Design and Implementation	6	2	9	19
All Testing (Function to Regression)	11	3	7	13
Total Weeks Involved With Core Development	**51**	**17**	**46**	**83**

Table 4: Average Number of Weeks for Implementation Across All Three leading Vendor Customers and All Respondents

The figures above exclude non-development related activities, such as procurement and deployment of the platform used. We found considerable contrasts across the platforms used. Those running Appian cited both faster overall delivery, as well as significantly greater number of releases per year (see Table 2).

Enterprise Platform vs. Departmental Silos

The final area we focused on for this study is related to project scope and scale. We asked respondents to identify which of the categories shown in Table 5 best reflected the project they were describing in their survey response. Not surprisingly, very few (20%) cited that their projects were limited to a single application. Respondents running on either Appian, IBM, or Pega all had multiple use cases for their platform. Even so, through our analysis of the responses as well as through follow-up interviews, we found notable areas of contrast.

The greatest contrast can be found in the number of apps developed using the Appian platform for use across the customer's enterprise. Relative to IBM and Pega, Appian's customers are far more likely to use the platform to develop apps that are used across the enterprise.

All respondents running on IBM cited multi-departmental projects. This was verified in follow-up interviews, where IBM customers disclosed that the applications were used across multiple departments, but the IBM platform itself was not viewed as an enterprise standard. Respondents running on Pega cited similar results and focus. However, Pega customers cited using its platform for stand-alone, built-for-purpose applications, without the expectation of integration across inter-departmental data. Meanwhile, Appian customers were found to be the most likely to use the Appian platform for managing and automating processes across the enterprise, leveraging the same data across applications and delivering a "single version of the truth."

	Overall	Appian	IBM	Pega
Application Specific (introduce application or specific function)	20%	0%	0%	0%
Departmental (multiple processes, single department)	0%	8%	0%	0%
Enterprise Horizontal (few processes, but across the enterprise)	0%	33%	0%	0%
Enterprise Platform (used for a growing portfolio of processes)	40%	59%	0%	34%
Multi-Department, But Not Enterprise	40%	0%	100%	66%
Total	**100%**	**100%**	**100%**	**100%**

Table 5: Project Scope as Reported by All Respondents and Specific to Each Platform Vendor

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Conclusions and Key Findings

We end our report with a summary of our key findings yielded by this research.

Total Cost of Ownership (TCO) Varies Greatly Between Vendors

Respondents running on Appian demonstrated a clear advantage on Total Cost of Ownership (TCO) over respondents running on both IBM and Pega, as well as the overall market. Pega customers reported spending on average 11 times more than Appian customers, and nearly twice that of IBM customers. These figures were based on the combined sums of license, implementation, personnel, and maintenance costs. In addition to higher upfront and ongoing costs, respondents reported that it takes an average of 4 years to deliver a project on Pega, over 2 years with IBM, and less than one year with Appian. Overall, Appian was distinguished as the clear leader for lower TCO.

Low-code Drives Lower TCO

Our results show that a low-code approach can lead to lower TCO, faster time to market, and fewer required resources. The benefits offered by a low-code platform in terms of agility, developer productivity, and overall transformation results, differentiate Appian's low-code platform customers from the overall respondents, as well as between the two other leading BPM platform vendors (IBM and Pega).

Low-Code Enables Time to Market / Speed of Application Delivery

Respondents using low-code platforms consistently reported faster application delivery. Notably Appian customers reported delivery on average in one-fifth the amount of time cited by Pega customers, and nearly 3 times faster than IBM customers. Respondents running on the Appian low-code platform also cited more releases per year, faster sprint cycles, and fewer resources required for change management or delivery.

Required Resources and Project Team Size Drive TCO

Respondents citing higher figures for number of resources required and larger project team sizes also report higher overall TCO. Pega customers (who cited the highest TCO in the study) required the highest number of FTEs on average compared to the Appian, IBM, and the overall market. Notably, Pega customers required about 5 times more FTEs on average than Appian customers (who cited the lowest TCO). One of the major constraints survey respondents cited was the challenge of finding the right services and personnel to support their projects, particularly onshore resources. This stood out as an advantage for Appian customers, who have indicated greater opportunity to build internal capabilities with fewer FTEs and fewer consultants.

Enterprise-Wide Deployments Demonstrate Lower vs. Higher TCO

Customers citing enterprise-wide deployments had the lowest overall TCO. Meanwhile, respondents reporting mostly departmental or other than enterprise-wide deployments also had the highest overall TCO. The majority of platforms covered in this survey were used for either departmental or multi-departmental use. However, Appian had the most responses for enterprise-wide deployments (59% of all deployments). Appian customers also reported the lowest TCO.